



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003RI18B

Title: Impact of Common Landscaping Plants on Nitrate Leaching

Project Type: Research

Focus Categories: Water Quality, Groundwater, Nitrate Contamination

Keywords: nitrate, leaching

Start Date: 03/01/2003

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Matching Funds: \$26243.00

Congressional District: 2

Principal Investigators: Amador, Jose

Abstract: Nitrate is one of the most commonly detected contaminants in groundwater in Rhode Island, and urban and suburban landscaping may contribute substantially to nitrate pollution. Research has shown that turf has little negative impact on water quality but little is known about other vegetative features of the landscape. We propose to quantify the impact of common landscaping plants on nitrate levels in soil and water. A field evaluation of the levels of inorganic nitrogen of the soil and soil water associated with landscaping plants, turf, and forest soils will be conducted over the course of a year (April 2003 – February 2004). Soil (top 10 cm) will be analyzed monthly for nitrate and ammonium levels, and soil water (collected using lysimeters placed at a depth of 50 cm) will be analyzed biweekly during the growing season, and monthly during the dormant season. These data, in conjunction with a hydrologic mass balance model, will be used to estimate the total amount of nitrate leaching to groundwater from each type of planting on an annual basis. These findings may lead to research on landscape design and management practices that would minimize nitrate contamination of groundwater.

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